

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A rotary piston heat engine system (100) composed of two units (I, II) each comprising two pistons (1, 2) mounted for movement in opposite directions, the pistons being each mounted for rotation in a cylinder (3, 3'), wherein the longitudinal axes (4, 4') of the pistons (2, 2') and cylinder (3, 3') are collinear, and the pistons (1, 2) are mounted for movement in opposite directions, and a plurality of effective cylinder displacements (8, 9, 11, 12) is formed in each case between two radial boundary surfaces (10, 20) of the two respective pistons (1, 2), which execute an angular motion relative to each other when the engine (100) is operating, and at least one mechanism (110) is provided that superimposes a circular motion on the angular motion of the two pistons (1, 2), and each unit comprises a shaft (6, 6') for driving a torque-producing device (5, 5', 5''), and heating means, heat storage means and cooling means connected to a pipe system are provided, by means of which the inlet ports (130, 130'; 131, 131') and

outlet ports (140, 140'; 141, 141') of the displacements of the cylinders (3, 3') of the units (I, II) are connected to each other, wherein a discretely-adjustable compensating device is provided that balances the positions of the respective pistons in the two units (I, II) in the event of a possible phase shift in the synchronization of the two units (I, II), in order to effect an optimal phase response, said compensating device (120) being in the form of a toothed belt disposed around the shaft of the two units (I, II) embodied as torque-producing devices (5', 5''), which belt is mounted for displacement by one or more teeth to effect compensation.

Claims 2-4 (Canceled).

Claim 5 (Currently Amended): A rotary piston heat engine system as defined in claim 4 24, wherein the anchoring system is embodied as a gearbox in which the respective shafts (6, 6') of the units adapted to drive a torque-producing device (5; 5', 5'') are stably mounted in different positions and in each of these positions meshing of the gear wheels of the torque-producing device with the respective gear wheels on the shafts is assured.

Claim 6 (Currently Amended): A rotary piston heat engine system as defined in claim ~~4~~ 24, wherein the anchoring system is in the form of a cover plate in which the respective shafts (6, 6') of the units adapted to drive a torque-producing device (5; 5', 5'') are stably mounted in different positions and in each of these positions meshing of the gear wheels of the torque-producing device with the respective gear wheels on the shafts is assured.

Claim 7 (Currently Amended): A rotary piston heat engine system as defined in claim 5, wherein the respective shafts (6, 6') of the units adapted to drive a torque-producing device (5; 5', 5'') are disposed relative to each other at a fixed angle of 135 ~~°s~~ degrees or 125 ~~°s~~ degrees, there being assigned to each shaft (6, 6') a respective bore A, A' and B, B', respectively, for each of these angular configurations.

Claims 8-9 (Canceled).

Claim 10 (Currently Amended): A rotary piston heat engine system as defined in claim ~~9~~ 25, wherein the two displaceable rollers (240, 241) are in the form of excentric rollers.

Claim 11 (Previously Presented): A rotary piston heat engine system as defined in claim 1, wherein a first inlet port (130) of a diametrically opposed first pair of inlet ports (130, 130) of a first cylinder (3) and a first outlet port (140) of a diametrically opposed first pair of outlet ports (140, 140) of the first cylinder (3) are separated from each other by 0.5° to 8° and a second inlet port (130) of the diametrically opposed first pair of inlet ports (130, 130) and a second outlet port (140) of the diametrically opposed first pair of outlet ports (140, 140) are separated from each other by an angular distance of approximately 55 to 95° .

Claim 12 (Previously Presented): A rotary piston heat engine system as defined in claim 11, wherein a first inlet port (130) of the diametrically opposed first pair of inlet ports (130, 130) and a first outlet port (140) of the diametrically opposed first pair of outlet ports (140, 140) are separated from each other by 4° .

Claim 13 (Previously Presented): A rotary piston heat engine system as defined in claim 11, wherein a second inlet port (130) of the diametrically opposed first pair of inlet ports (130, 130) and a second outlet port (140) of the diametrically

opposed first pair of outlet ports (140, 140) are separated from each other by an angular distance of approximately 77 °.

Claim 14 (Previously Presented): A rotary piston heat engine system as defined in claim 1, wherein a first inlet port (131) of a diametrically opposed second pair of inlet ports (131, 131) of a second cylinder (3) and a first outlet port (141) of a diametrically opposed second pair of outlet ports (141, 141) of the second cylinder (3) are separated from each other by an angular distance of approximately 25 ° to 45 ° and a second inlet port (131) of the diametrically opposed second pair of inlet ports (131, 131) and a second outlet port (141) of the diametrically opposed second pair of outlet ports (141, 141) are separated from each other by an angular distance of approximately 30 ° to 60 °.

Claim 15 (Previously Presented): A rotary piston heat engine system as defined in claim 14, wherein a first inlet port (131) of the diametrically opposed second pair of inlet ports (131, 131') and a first outlet port (141) of the diametrically opposed second pair of outlet ports (141, 141') are separated from each other by an angular distance of approximately 34 °.

Claim 16 (Previously Presented): A rotary piston heat engine system as defined in claim 14, wherein a second inlet port (131) of the diametrically opposed second pair of inlet ports (131, 131') and a second outlet port (141) of the diametrically opposed second pair of outlet ports (141, 141') are separated from each other by an angular distance of approximately 47 °.

Claim 17 (Previously Presented): A rotary piston heat engine system as defined in claim 11, wherein all inlet ports and outlet ports in the cylinder head (33; 33') are provided in a respective cylinder (3; 3').

Claim 18 (Previously Presented): A rotary piston heat engine system as defined in claim 1, wherein additionally heat storage means are provided which are connected to the heating means and the cooling means.

Claim 19 (Previously Presented): A rotary piston heat engine system as defined in claim 1, wherein the two units are such that that part of the system (5, 102, 103) from which the torque of the rotary piston engine (100) can be outputted is driven by both units (I, II), and heating means, heat storage means and cooling means in conjunction with a piping system are

provided, which piping system connects the inlet ports and outlet ports of the piston displacements of the at least one cylinder (3) of the units (I, II) to each other are.

Claims 20-21 (Canceled).

Claim 22 (New): A heat pump comprising a rotary piston heat engine system (100) composed of two units (I, II) each comprising two pistons (1, 2) mounted for movement in opposite directions, the pistons being each mounted for rotation in a cylinder (3, 3'), wherein the longitudinal axes (4, 4') of the pistons (2, 2') and cylinder (3, 3') are collinear, and the pistons (1, 2) are mounted for movement in opposite directions, and a plurality of effective cylinder displacements (8, 9, 11, 12) is formed in each case between two radial boundary surfaces (10, 20) of the two respective pistons (1, 2), which execute an angular motion relative to each other when the engine (100) is operating, and at least one mechanism (110) is provided that superimposes a circular motion on the angular motion of the two pistons (1, 2), and each unit comprises a shaft (6, 6') for driving a torque-producing device (5, 5', 5''), and heating means, heat storage means and cooling means connected to a pipe system are provided, by means of which the inlet ports (130, 130'; 131, 131') and

outlet ports (140, 140'; 141, 141') of the displacements of the cylinders (3, 3') of the units (I, II) are connected to each other, wherein a discretely-adjustable compensating device is provided that balances the positions of the respective pistons in the two units (I, II) in the event of a possible phase shift in the synchronization of the two units (I, II), in order to effect an optimal phase response, said compensating device (120) being in the form of a toothed belt disposed around the shaft of the two units (I, II) embodied as torque-producing devices (5', 5''), which belt is mounted for displacement by one or more teeth to effect compensation, wherein rotational energy is supplied to the torque-producing devices (5; 5', 5'').

Claim 23 (New): A refrigerating system comprising a rotary piston heat engine system (100) composed of two units (I, II) each comprising two pistons (1, 2) mounted for movement in opposite directions, the pistons being each mounted for rotation in a cylinder (3, 3'), wherein the longitudinal axes (4, 4') of the pistons (2, 2') and cylinder (3, 3') are collinear, and the pistons (1, 2) are mounted for movement in opposite directions, and a plurality of effective cylinder displacements (8, 9, 11, 12) is formed in each case between two radial boundary surfaces (10, 20) of the two respective pistons (1, 2), which execute an

angular motion relative to each other when the engine (100) is operating, and at least one mechanism (110) is provided that superimposes a circular motion on the angular motion of the two pistons (1, 2), and each unit comprises a shaft (6, 6') for driving a torque-producing device (5, 5', 5''), and heating means, heat storage means and cooling means connected to a pipe system are provided, by means of which the inlet ports (130, 130'; 131, 131') and outlet ports (140, 140'; 141, 141') of the displacements of the cylinders (3, 3') of the units (I, II) are connected to each other, wherein a discretely-adjustable compensating device is provided that balances the positions of the respective pistons in the two units (I, II) in the event of a possible phase shift in the synchronization of the two units (I, II), in order to effect an optimal phase response, said compensating device (120) being in the form of a toothed belt disposed around the shaft of the two units (I, II) embodied as torque-producing devices (5', 5''), which belt is mounted for displacement by one or more teeth to effect compensation, wherein rotational energy is supplied to the torque-producing devices (5; 5', 5'').

Claim 24 (New): A rotary piston heat engine system (100) composed of two units (I, II) each comprising two pistons (1, 2) mounted for movement in opposite directions, the pistons being each mounted for rotation in a cylinder (3, 3'), wherein the longitudinal axes (4, 4') of the pistons (2, 2') and cylinder (3, 3') are collinear, and the pistons (1, 2) are mounted for movement in opposite directions, and a plurality of effective cylinder displacements (8, 9, 11, 12) is formed in each case between two radial boundary surfaces (10, 20) of the two respective pistons (1, 2), which execute an angular motion relative to each other when the engine (100) is operating, and at least one mechanism (110) is provided that superimposes a circular motion on the angular motion of the two pistons (1, 2), and each unit comprises a shaft (6, 6') for driving a torque-producing device (5, 5', 5''), and heating means, heat storage means and cooling means connected to a pipe system are provided, by means of which the inlet ports (130, 130'; 131, 131') and outlet ports (140, 140'; 141, 141') of the displacements of the cylinders (3, 3') of the units (I, II) are connected to each other, wherein a discretely-adjustable compensating device is provided that balances the positions of the respective pistons in the two units (I, II) in the event of a possible phase shift in the synchronization of the two units (I, II), in order to effect

an optimal phase response, said compensating device being embodied as an anchoring system (122), in which the respective shafts (6, 6') of the units (I, II) adapted to drive a torque-producing device (5,) are stably mounted in different positions, and in each of these positions meshing of the gear wheels of the torque-producing device with the respective gear wheels of said shafts is guaranteed.

Claim 25 (New): A rotary piston heat engine system (100) composed of two units (I, II) each comprising two pistons (1, 2) mounted for movement in opposite directions, the pistons being each mounted for rotation in a cylinder (3, 3'), wherein the longitudinal axes (4, 4') of the pistons (2, 2') and cylinder (3, 3') are collinear, and the pistons (1, 2) are mounted for movement in opposite directions, and a plurality of effective cylinder displacements (8, 9, 11, 12) is formed in each case between two radial boundary surfaces (10, 20) of the two respective pistons (1, 2), which execute an angular motion relative to each other when the engine (100) is operating, and at least one mechanism (110) is provided that superimposes a circular motion on the angular motion of the two pistons (1, 2), and each unit comprises a shaft (6, 6') for driving a torque-producing device (5, 5', 5''), and heating means, heat storage

means and cooling means connected to a pipe system are provided, by means of which the inlet ports (130, 130'; 131, 131') and outlet ports (140, 140'; 141, 141') of the displacements of the cylinders (3, 3') of the units (I, II) are connected to each other, wherein a continuously-adjustable compensating device is provided that balances the positions of the respective pistons in the two units (I, II) in the event of a possible phase shift in the synchronization of the two units (I, II), in order to effect an optimal phase response, said compensating device being in the form of two displaceable rollers (240, 241) disposed between the two torque-producing devices (5', 5'') of the two units (I, II) and are drivingly connected to the torque-producing devices (5', 5'') via a toothed belt, which displaceable rollers (240, 241) are reciprocally displaceable over a mutually variable distance in a direction perpendicular to the connecting line of the torque-producing devices (5', 5'').